

### **REMARKS**

Reconsideration and withdrawal of the rejections set forth in the Final Office Action dated April 7, 2009, is respectfully requested in view of this amendment. By this amendment, claim 1 has been amended and new claims 16-19 are submitted. Claims 1-19 are pending in this application.

Claim 1 has been amended to describe the gear wheels having an involute-free mesh profile and the meshing of the tooth flanks occurs at planiform contact regions. The claim also describes the effective profiles of the tooth flanks coordinated with each other to establish planiform contact regions, linearly viewed in cross section, along their complete height. Support is found in the specification, *inter alia*, at Paragraphs [0020] and [0032]. The amendment to claim 3 merely corrects a typographical error. New claim 16 describes the transition from the concave area directly to the convex area providing a direct change from a concave to a convex curve in transition zones with no involute transition area, thereby reducing development of noise during meshing, and achieving a high bearing and loading capability over an entire rolling contact zone. Support is found in the specification, *inter alia*, at Paragraph [0036]. New dependent claims 17-19 depend from claim 17 and include the subject matter of claims 2, 5-7 and 9. It is respectfully submitted that the above amendments introduce no new matter within the meaning of 35 U.S.C. §132.

In the outstanding Office Action, the Examiner rejected claims 1-5, 9 and 12-14 under 35 U.S.C. §103(a) as unpatentable over Korean reference no. KR20020046534 (hereinafter *Chun*) in view of U.S. Patent No. 6,101,892 to Berlinger, Jr. et al. (hereinafter *Berlinger*). Claims 6-8 were rejected under 35 U.S.C. §103(a) as unpatentable over *Chun* and *Berlinger*, taken further in view of U.S. Patent No. 2,760,381 to Pickles (hereinafter *Pickles*); and claims 10, 11, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Chun* and *Berlinger*, taken further in view of U.S. Patent Application Publication No. 2002/0051860 to

Hiroi et al. (hereinafter *Hiroi*). These rejections, as applied to the revised claims, are respectfully traversed.

### **Acknowledgement of Interview**

An interview, granted by the Examiner and held on September 28, 2009, is gratefully acknowledged. During the interview, claim 1 was discussed. The applicability of prior art, and particularly the *Berlinger* reference, was discussed. In the interview, it was agreed that the Applicants would submit an amended claim which would describe the gear features.

The interview is believed to have expedited the prosecution of this case, and the Examiner's efforts in this regard are appreciated.

### **Rejections Under 35 U.S.C. §103**

The Examiner rejected claims 1–5, 9, and 12–14 under 35 U.S.C. §103(a) as unpatentable over *Chun* in view of *Berlinger*. Claims 6–8 were rejected under 35 U.S.C. §103(a) as unpatentable over *Chun* and *Berlinger*, taken further in view of *Pickles*; and claims 10, 11, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Chun* and *Berlinger*, taken further in view of *Hiroi*.

### **Response**

This rejection is traversed as follows. To establish a *prima facie* case of obviousness, the Examiner must establish: (1) some suggestion or motivation to modify the references exists; (2) a reasonable expectation of success; and (3) the prior art references teach or suggest all of the claim limitations. *Amgen, Inc. v. Chugai Pharm. Co.*, 18 USPQ2d 1016, 1023 (Fed. Cir. 1991); *In re Fine*, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988); *In re Wilson*, 165 USPQ 494, 496 (CCPA 1970).

A *prima facie* case of obviousness must also include a showing of the reasons why it would be obvious to modify the references to produce the present invention. *See Dystar*

*Textilfarben GMBH v. C. H. Patrick*, 464 F.3d 1356 (Fed. Cir. 2006). The Examiner bears the initial burden to provide some convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings. *Id.* at 1366.

Claim 1, as amended, sets forth:

"... a first toothed gear wheel made of plastic and a second toothed gear wheel ... comprising an involute-free mesh profile ... and transition from a concave area directly to a convex area, effective profiles of said tooth flanks matching in a manner that the meshing of the tooth flanks occurs at planiform contact regions, linearly viewed in cross section, along their complete height ... and the effective profiles of the tooth flanks coordinated with each other over their entire height ( $h_4, h_5$ ), thereby establishing said planiform contact regions ... ."

Claim 1 as now presented sets forth a configuration in which the mesh profile transitions from a concave area directly to a convex area. This results in reducing gear mesh noise, while at the same time achieving a high bearing and high load capability over the entire rolling contact zone. This allows engine impulses, transferred to counterbalance mechanisms, engine auxiliary drives, etc., to be transferred with low noise and low wear.

With respect to the cited art these features distinguish the gear according to the present application from the construction disclosed by *Chun* and *Berlinger*. *Chun* merely uses a plastic gear, but fails to suggest a particular construction relevant to Applicants' subject matter. Without the particular construction, there can be no suggestion that the construction be used to provide Applicants' gear construction. Specifically, there is no description in *Chun* of how to construct a gear configured according to claim 1 and therefore no suggestion of how to construct the gear from synthetic material. Instead, *Chun* merely describes forming gear wheels formed from synthetic material. It is further noted that, while gear noise is described by *Chun*, there is no suggestion that the gear noise be controlled by the transition from the concave area provided with profiles of said tooth flanks matching in a manner that the meshing of the tooth flanks occurs at planiform contact regions, linearly viewed in cross section, along their complete height.

Returning to the *Berlinger* reference, *Berlinger* fails to suggest Applicants' transition from a concave area directly to a convex area, in which the effective profiles of the tooth flanks coordinated with each other over their entire height ( $h_4, h_5$ ), thereby establishing said planiform contact regions, linearly viewed in cross section, along their complete height.

The cited prior art combination therefore fails to show or suggest Applicants' claimed subject matter as set forth in claims 1–5, 9, and 12–14. It is therefore respectfully submitted that the rejection under 35 U.S.C. 103(a) should be withdrawn. Claims 6-8, 10, 11, and 15 depend from claim 1 and are allowable for at least this reason.

Applicant respectfully request that the Examiner withdraw the rejections and the case be passed to issuance.

#### **Claims 16-19**

Claim 16 sets forth the transition from the concave area as providing a direct change from a concave to a convex curve in transition zones with no involute transition area. It is submitted that this description is distinguished from the combination of *Chun* and *Berlinger* in that this feature is neither shown nor suggested in these references.

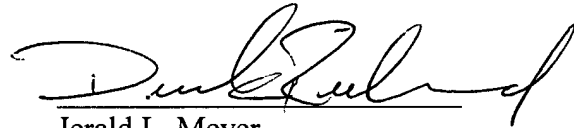
**CONCLUSION**

In light of the foregoing, Applicants submit that the application is in condition for allowance. If the Examiner believes the application is not in condition for allowance, Applicants respectfully request that the Examiner call the undersigned.

Respectfully submitted,  
**THE NATH LAW GROUP**

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THE NATH LAW GROUP  
112 South West Street  
Alexandria, VA 22314-2891  
Tel: 703-548-6284  
Fax: 703-683-8396



Jerald L. Meyer  
Registration No. 41,194  
Derek Richmond  
Registration No. 45,771  
Stanley N. Protigal  
Registration No. 28,657  
Customer No. 20529